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27076 7590 06/08/2009

DORSEY & WHITNEY LLP
INTELLECTUAL PROPERTY DEPARTMENT
SUITE 3400
1420 FIFTH AVENUE
SEATTLE, WA 98101

EXAMINER

ROBERTSON, DAVID

ART UNIT

PAPER NUMBER

2121

DATE MAILED: 06/08/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/824,852

04/02/2001

Simon Jacobs

500744.03

9969

TITLE OF INVENTION: ENTERPRISE SCHEDULING SYSTEM FOR SCHEDULING MOBILE SERVICE REPRESENTATIVES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	09/08/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

27076 7590 06/08/2009

DORSEY & WHITNEY LLP
INTELLECTUAL PROPERTY DEPARTMENT
SUITE 3400
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SEATTLE, WA 98101

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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09/824,852 04/02/2001 Simon Jacobs 500744.03 9969

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nonprovisional NO \$1510 \$300 \$0 \$1810 09/08/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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ROBERTSON, DAVID 2121 705-008000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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ROBERTSON, DAVID

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 416 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 416 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	09/824,852	JACOBS ET AL.	
	Examiner	Art Unit	
	Dave Robertson	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/12/09.
2. ☒ The allowed claim(s) is/are 1-27,31-33,58-60 and 62-81.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|--|

/Albert DeCady/
Supervisory Patent Examiner, Art Unit 2121

DETAILED ACTION

1. This is an Examiners Amendment and Reasons for Allowance of all claims pending after entry of the amendments herein. Claims 11-27, 31-33, 58-60 and 62-81 are allowed.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Atty Kimton Eng (Reg # 43,605) on 3/26/2009.

In the claims:

Please amend claims 11, 20-24, 32, 33, 58, 66, 69, 71, and 76 as indicated below:

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11. A computer readable medium having computer-executable instructions stored thereon for causing a computer to perform a method for scheduling by performing steps comprising:

negotiating a reservation to perform an order for a customer against a schedule;

adding the reservation, wherein adding the reservation includes identifying a duration, a priority, a location, an appointment window, a mobile service representative, a bumping indicator, and an aggregation indicator for the reservation, the aggregation indicator having a first setting to enable aggregation of the reservation and having a second setting to disable aggregation of the reservation;

~~analyzing shifts of mobile service representatives to~~ identifying shifts of mobile service representatives that are suitable for the reservation;

sorting the identified shifts ~~from a more desirable shift to a less desirable shift~~ according to objective criteria associated with the reservation;

booking the order to one of the shifts of mobile service representatives starting with the ~~best~~ more desirable shift and in descending order to the ~~worst~~ less desirable shift according to the objective criteria;

in response to the bumping indicator indicative of enabled bumping of the reservation, bumping ~~the reservations of a shift~~ in accordance with a bumping matrix to make room in the shift for the reservation, the bumping matrix having indicators of automatic bumping and on request bumping for the reservations enabled for bumping;

in response to the aggregation indicator having the first setting to enable aggregation of the reservation, aggregating reservations in accordance with an aggregation parameter set to group reservations together, the aggregation parameter set defining information of reservations to be compared during aggregation, the aggregated reservations having a same value for the information defined by the aggregation parameter set, and in response to the aggregation indicator having the second setting to disable aggregation of the reservation, not aggregating reservations having the same value for the information defined by the aggregation parameter set; and

periodically optimizing ~~periodically~~ the shifts of the mobile service representative according to the order of desirability of the identified shifts, the objective criteria, the aggregation parameter set, and the bumping matrix.

20. The computer readable medium having computer-executable instructions stored thereon of claim 11, wherein booking includes booking the order to a shift of the mobile service representative if the mobile service representative has the set of skills and the set of equipment according to the objective criteria.

21. A scheduling system for a dispatching environment having a processor and memory, the processor having a scheduling engine for scheduling mobile service representative, the scheduling engine comprising:

a negotiator operable to negotiate an appointment window to perform an order, the order defined by a data structure that includes at least one of an appointment window, a duration, a priority, a location, and a set of skills required to carry out the order, and further includes at least one of a bumping indicator and an aggregation indicator, the aggregation indicator having a first setting to enable aggregation of the reservation and having a second setting to disable aggregation of the reservation, the data structure residing on a computer media;

an assignment filter configured to ~~analyze shifts of mobile service representatives~~ to identify shifts that are suitable for the reservation and further configured to sort the identified shifts from a more desirable shift to a less desirable shift according to objective criteria associated with the reservation;

an assigner operable to assign the order to a shift of a mobile service representative starting with the ~~best~~ more desirable shift and in descending order to the ~~worst~~ less desirable shift according to the objective criteria;

a bumping component operable to ~~bumping the reservations of a shift~~ in accordance with a bumping matrix in response to the bumping indicator indicative of enabled bumping of the reservation to make room in the shift for the reservation, the bumping matrix having indicators of automatic bumping and on request bumping for the reservations enabled for bumping;

an aggregator component operable to aggregate reservations having enabled aggregation indicators in accordance with an aggregation parameter set to group reservations together, the aggregation parameter set defining information of reservations to be compared during aggregation, the aggregated reservations having a same value for the information defined by the aggregation parameter set; and

an optimizer operable to optimize dynamically ~~at least one shift~~ the shifts of the mobile service representative so as to enhance the scheduling system according to the order of desirability of the identified shifts, the objective criteria, the aggregation parameter set, and the bumping matrix ~~in accordance with a predetermined set of business objectives.~~

22. The scheduling system of claim 21, wherein the order is defined by a data structure that includes an appointment window, a duration, a priority, a location, and a set of skills required to carry out the order, ~~and wherein the data structure resides on a computer media.~~

23. The scheduling system of claim 21, wherein the mobile service representative is defined by a data structure that includes a set of skills that the mobile service representative possesses and the equipment that the mobile service representative possesses, ~~and wherein the data structure resides on a computer media.~~

24. The scheduling system of claim 21, wherein the shift is defined by a data structure that includes a shift start date and start time, a shift end date and end time, a set of break start dates and start time, a set of break end dates and end times, and a starting location and an ending location, ~~and wherein the data structure resides on a computer media.~~

32. The scheduling system of claim 21, wherein the optimizer includes an optimizing filter, wherein the optimizing filter finds a shift into which a reservation fits, for ~~with~~ the purpose of better satisfying the optimization objectives.

33. The scheduling system of claim 21, wherein the optimizer includes an optimization objective component having a set of optimization objectives, wherein the

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optimization objective component determines the degree to which the set of optimization objectives are satisfied ~~if the optimizer were to~~ by optimizing ~~it~~ a shift or a pair of shifts.

58. A computer readable medium having computer-executable instructions stored thereon for causing a computer to perform a method for scheduling mobile service representatives by performing steps comprising:

negotiating an appointment window for booking a reservation;

adding a reservation, wherein adding a reservation includes identifying a duration, a priority, a location, an appointment window, a mobile service representative, a bumping indicator, and an aggregation indicator, the aggregation indicator having a first setting to enable aggregation of the reservation and having a second setting to disable aggregation of the reservation;

identifying ~~suitable~~ shifts of mobile service representative ~~that are suitable for to~~ ~~which the reservation can be booked;~~

sorting the identified shifts from the a most desirable to the a least desirable shift based on objective criteria associated with the reservation;

assigning the reservation to a shift of a mobile service representative starting with the ~~best~~ more desirable shift and in descending order to the ~~worst~~ less desirable shift according to the objective criteria;

in response to the bumping indicator indicative of enabled bumping of the reservation, bumping ~~the~~ reservations of a shift in accordance with a bumping matrix to make room in the shift for the reservation, the bumping matrix having indicators of automatic bumping and on request bumping for the reservations enabled for bumping;

in response to the aggregation indicator having the first setting to enable aggregation of the reservation, aggregating reservations in accordance with an aggregation parameter set to group reservations together, the aggregation parameter set defining information of reservations to be compared during aggregation, the aggregated reservations having a same value for the information defined by the aggregation parameter set, and in response to the second setting to disable aggregation of the reservation, not aggregating reservations having the same value for the information defined by the aggregation parameter set; and

periodically optimizing ~~periodically~~ the shifts of the mobile service representative[s] according to the order of desirability of the identified shifts, the objective criteria, the aggregation parameter set, and the bumping matrix ~~while the acts of negotiating and assigning are executing.~~

66. The computer readable medium having computer-executable instructions stored thereon of claim 58, further comprising computer-executable instructions for causing a computer to ~~perform completing a reservation so as to inhibit~~ bumping of the reservation ~~from being bumped, aggregated, or moved to another shift during optimization.~~

69. The computer readable medium having computer-executable instructions stored thereon of claim 58, further comprising computer-executable instructions for causing a computer to perform reassigning a bumped or a yanked reservation.

71. The computer readable medium having computer-executable instructions stored thereon of claim 58, further comprising computer-executable instructions for causing a computer to perform modifying the shift of a mobile service representative.

76. The computer readable medium having computer-executable instructions stored thereon of claim 58, further comprising deleting computer-executable instructions for causing a computer to perform deleting forcibly a shift.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

The closest prior art MDSI Mobile Data Solutions, Sisley et al. (U.S. 5,467,268), and Lesaint et al. (U.S. 6,578,005), alone or in combination fail to teach of fairly suggest the invention as a whole as recited in independent claims 11, 22, and 58. Specifically, none of MDSI, Sisley, or Lesaint teach *in response to the bumping indicator indicative of enabled bumping of the reservation, bumping reservations of a shift in accordance with a bumping matrix to make room in the shift for the reservation, the bumping matrix having indicators of automatic bumping and on request bumping for the reservations enabled for bumping; and periodically optimizing the shifts of the mobile service representative according to the order of desirability of the identified shifts, the objective criteria, the aggregation parameter set, and the bumping matrix.*

MDSI teaches a computer-implemented method for scheduling an order to a mobile service representative. While MDSI teaches several aspects of the invention as claimed, including negotiating a reservation to perform an order for a customer against a schedule; adding a reservation, and booking the order to one of the shifts of mobile service representatives according to objective criteria, MDSI does not teach sorting identified shifts according to the objective criteria (i.e. the desirability of assigning the shift to the mobile service representative) or booking the order to a shift in order from the most to the least desirable shift according to the objective criteria and aggregating the shifts of the mobile service representative in accordance with an aggregation parameter set defining information of reservations to be compared during aggregation.

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While Sisley and Lesaint teach or suggest certain of these features lacking in MDSI, none of MDSI, Sisley, or Lesaint teach employing *a bumping matrix* as recited and disclosed (see Fig. 6A 6B and related discussion) and *periodically optimizing the shifts of the mobile service representative according to the order of desirability of the identified shifts, the objective criteria, the aggregation parameter set, and the bumping matrix*, as recited in claims 11, 22, and 58.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dave Robertson whose telephone number is (571)272-8220. The examiner can normally be reached on 9 am to 5 pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Albert DeCady/
Supervisory Patent Examiner, Art
Unit 2121

/Dave Robertson/
Examiner, Art Unit 2121